

**WSDOT and City of Renton  
Springbrook Creek Wetland and Habitat Mitigation Bank  
Unit C**

**USACE IP 200600100**

**Northwest Region**

**2010 MONITORING REPORT**

**Wetland Assessment and Monitoring Program**

*Issued January 2011*



Environmental Services Office

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# WSDOT and City of Renton Springbrook Mitigation Bank Unit C

**USACE IP 200600100**

	<b>General Site Information</b>	
	<b>USACE IP Number</b>	200600100
	<b>Mitigation Location</b>	Southwest Renton, King County
	<b>Unit C LLID Number</b>	1222395474429
	<b>Monitoring Period</b>	2010-2019
	<b>Year of Monitoring</b>	1 of 10

## Summary of Monitoring Results and Management Activities (2010)

Performance Criteria	2010 Results	Management Activities
Wetland Tree/Shrub planting areas will have at least 2,000 stems of living native woody vegetation per acre	2,375 stems/acre	200 cluster rose ( <i>Rosa pisocarpa</i> ) and 200 Oregon ash ( <i>Fraxinus latifolia</i> ) were planted
Upland and Riparian Upland planting areas will have at least 1,200 stems of living native woody vegetation per acre	1,313 stems/acre	
Forested Wetland Enhancement areas will contain at least 70 living native conifers per acre	89 stems/acre	
Remove all Japanese knotweed, English ivy, and purple loosestrife identified within Unit C	Multiple weed control visits	On-going Weed Control
At least 50 woody habitat structures will be present in Unit C	91 habitat structures present	

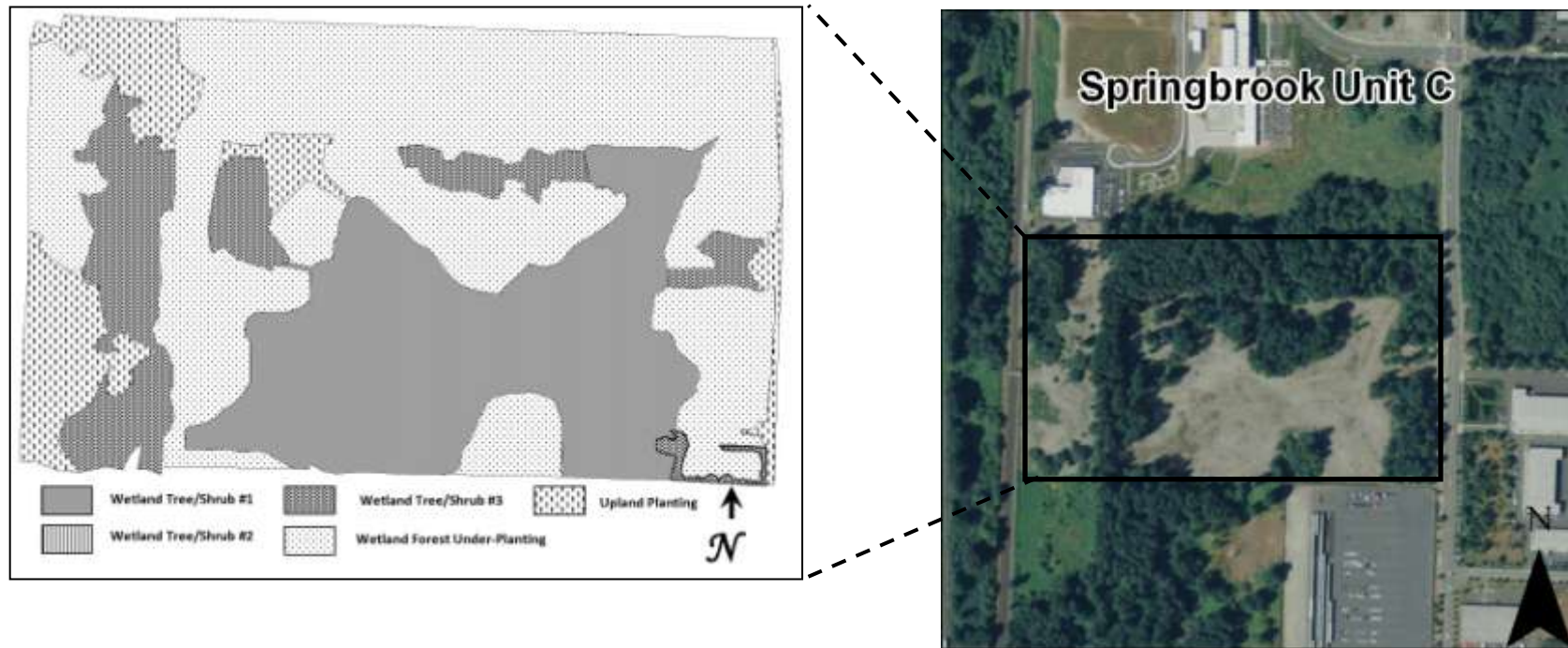
## Report Introduction

This report summarizes first-year (Year-1) monitoring activities at Unit C of the Springbrook Creek Wetland and Habitat Mitigation Bank. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities included plant counts, photo-documentation (Appendix 4), and habitat structure surveys. Plant counts were completed in mid-July, photos were taken on August 9<sup>th</sup>, and LWD surveys occurred in November 2009.

An agency site visit that took place in 2010 noted errors in the as-built drawings. These have been revised to correct an omission in the SE corner of the site. The corrected As-built drawings document a change in acreage of 0.19 acre from 47.67 to 47.48 acres. These As-built drawings (Appendix 2) were developed from the surveyed property boundaries and represent the most accurate calculations of Unit C acreage. Most of the 0.19 acre difference in area from the total area identified in the MBI is likely the result of more accurate surveyed location of the BNSF Railroad Right-of-Way along the West side of the site.

## What is the Springbrook Creek Wetland and Habitat Mitigation Bank

This mitigation bank contains reestablished, rehabilitated, and enhanced wetlands as well as enhanced uplands and riparian areas adjacent to Springbrook Creek. Unit C (Figure 1) is 47.48 acres, of which 27.9 acres are pre-existing wetlands. The bank is operated and managed by WSDOT and the City of Renton. The purpose of the bank is to provide compensation for unavoidable impacts to wetlands and other aquatic resources caused by WSDOT highway construction projects and City of Renton mitigation requirements within the service area.



**Figure 1 Site Sketch**

The Springbrook Creek Wetland and Habitat Mitigation Bank is composed of five separate units, totaling 129.37 acres, which represents some of the last remaining large tracts of undeveloped land in the Green River Basin. All five units are located in the southwestern portion of the City of Renton, King County, Washington.

## **What are the performance standards for this site?<sup>1</sup>**

### Performance Standard C-3A

In Year 1, the Wetland Tree/Shrub planting areas will have at least 2,000 stems of living native woody vegetation per acre.

### Performance Standard C-3B

In Year 1, The Upland planting areas will have at least 1,200 stems of living native woody vegetation per acre.

### Performance Standard C-3C

In Years 1, 5 and 10, the Forested Wetland Enhancement areas will contain at least 70 living native conifers per acre.

### Performance Standard C-8

In Years 1 through 10, remove all Japanese knotweed, English ivy, and purple loosestrife identified within Unit C.

### Performance Standard C-9

In Year 1, at least 50 woody habitat structures (vertical snags, brush piles, and/or LWD) will be present within Unit C.

## **How were the performance standards evaluated?**

To evaluate standards for vegetative density (Performance Standards 3A ,3B and 3C), all woody plants installed were evaluated. This inspection was performed by a team composed of Construction Inspectors, planting contractor representatives and WSDOT Biologists. The number of dead or missing plants were counted in each zone; this number was subtracted from the number of native woody plants installed, as per the updated As-built, to obtain the number of live native woody plants in each of the planting zones. The calculated live stem densities do not include naturally recruited native woody plants that have established on the site.

Documentation from site managers and contractors was used to address the invasive species standard (Performance Standard C-8).

Habitat structures were located and counted to ensure all logs and root wads were present according to plan (Performance Standard C-9).

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<sup>1</sup> Appendix 1 provides the complete text of the performance standards for this project from the Mitigation Bank Instrument.

## **How is the site developing?**

Woody species have developed rapidly in the wetland zones. Planted species in these areas are already extremely dense, with very low plant mortality. Development in the buffer has been slightly slower but density in these zones also exceeds performance standard targets. Invasive cover across the site is very low and these species are not currently threatening the establishment of installed native plants.

Results for Performance Standard C-3A

(Wetland Tree/Shrub planting areas will each have at least 2,000 stems of living native woody vegetation per acre):

The Wetland Tree/Shrub planting areas have a total of 45,548 living planted stems. The total area of these three wetland planting zones is 19.18 acres. Therefore, the density of live native woody vegetation in this zone is 2,375 plants per acre (Photo 1). This density value exceeds the performance standard target.

Results for Performance Standard C-3B

(Upland and Riparian Upland planting areas will each have at least 1,200 stems of living native woody vegetation per acre):

The Upland and Riparian Upland planting areas have a total of 6,381 living native woody plants. The total area of these Upland and Riparian planting zones is 4.86 acres. Therefore, the density of live native woody vegetation in this zone is 1,313 plants per acre (Photo 2). This density value exceeds the performance standard target.

Results for Performance Standard C-3C

(Forested Wetland Enhancement areas will contain at least 70 living conifers per acre.):

The Forested Wetland Enhancement area has a total of 2,087 living conifer stems. The total area of the Wetland Forested Enhancement planting zones is 23.41 acres. Therefore, the density of live conifers in this zone is 89 per acre. This density value exceeds the performance standard target.



**Photo 1 Woody vegetation in the scrub-shrub wetland (August 2010)**



**Photo 2 Woody vegetation in the upland planting zone (August 2010)**

Results for Performance Standard C-8

(Remove all Japanese knotweed, English ivy, and purple loosestrife identified within Units C):

All populations of Japanese knotweed (*Polygonum cuspidatum*), English ivy (*Hedera helix*), and purple loosestrife (*Lythrum salicaria*) identified in the unit were treated and removed. In addition Himalayan blackberry (*Rubus armeniacus*), Canada thistle (*Cirsium arvense*), reed canarygrass (*Phalaris arundinacea*), and paleyellow iris (*Iris pseudacorus*) were targeted for weed control across the site.

Results for Performance Standard C-9

(At least 50 woody habitat structures (vertical snags, brush piles, and/ or LWD) will be present):

A total of nine vertical snags, sixty-five pieces of large woody debris, and seventeen brush piles were counted and confirmed as per the I-405 Springbrook Creek Wetland and Habitat Mitigation Bank Unit C As-Built Report see Appendix 3 (2009).

**What is planned for this site?**

Unit C will continue to receive on-going weed control on an as-needed basis. Additional details related to site management can be found in the Springbrook Creek Wetland and Habitat Mitigation Bank Status Report 2010.

# Appendix 1 – Goals and Performance Standards

The following excerpt is from the Springbrook Creek Wetland and Habitat Mitigation Bank Instrument (WSDOT 2006). The performance criteria addressed this year are identified in **bold** font.

Unit C Performance Standards	Monitoring Tasks/Methods	Related Objectives	Functions and Values *	Function Attributes from Hruby et al. (1999) **
<b>Grading/Hydrology</b>				
<b>C-1.</b> As-Built drawings will document that site grading and planting has been completed as shown on the Unit C plans.	After construction is completed, As-Built drawings will be submitted to document the completion of grading and planting work. Monitoring will confirm conditions depicted in the As-Built drawings.	1, 2, 3, 4	Water Quality Hydrologic Habitat	Wetland area. Area seasonally inundated. Number of water regimes. Number of water depths.
<b>C-2A.</b> In Year 3, soils will be saturated to the surface, <u>or</u> standing water will be present 12 inches below the surface or less for at least 10% of the growing season. ***	Visual inspection of multiple hand-dug pits conducted during multiple site visits in the early growing season or other appropriate methodology.			
<b>C-2B.</b> In Years 5 and 10, at least 9.27 acres of wetland will be present within the Wetland Re-Establishment area in Unit C.	Wetland conditions will be demonstrated by wetland delineation, performed according to the 1987 Corps of Engineers Wetland Delineation Manual and the 1997 Washington State Wetland Identification Manual, by a qualified WSDOT biologist in Years 5 and 10.			
<b>Vegetation</b>				
<b>C-3A.</b> In Year 1, the Wetland Tree/Shrub planting areas will have at least 2,000 stems of living native woody vegetation per acre.	In Year 1, determine density of living stems per acre using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000) or other statistically appropriate method.	2, 3, 4	Hydrologic Water Quality Habitat	Number of vegetation classes. Cover by woody vegetation. Canopy closure over wetland. Number of vegetation strata. Number of native plant species. Number of plant assemblages. Vegetation class interspersion. Mature woody vegetation. Buffer condition.
<b>C-3B.</b> In Year 1, The Upland planting areas will have at least 1,200 stems of living native woody vegetation per acre.				
<b>C-3C.</b> In Years 1, 5 and 10, the Forested Wetland Enhancement areas will contain at least 70 living native conifers per acre.				

<b>Unit C Performance Standards</b>	<b>Monitoring Tasks/Methods</b>	<b>Related Objectives</b>	<b>Functions and Values *</b>	<b>Function Attributes from Hruby et al. (1999) **</b>
<b>C-4A.</b> In Year 3, the Wetland Tree/Shrub planting areas will have at least 2,000 stems of living native woody vegetation per acre.	In Year 3, determine density of living stems per acre using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000) or other statistically appropriate method.			
<b>C-4B.</b> In Year 3, the Wetland Enhancement Type I areas will have at least 100 conifers per acre.	In Year 3, determine density of living conifers per acre using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000) or other statistically appropriate method.			
<b>C-5A.</b> In Year 5, native woody vegetation within the Wetland Tree/Shrub planting areas will provide at least 50% aerial cover.	In Years 5 and 7, determine woody cover by species in the Tree/Shrub planting areas, and in Year 5 in the Upland planting areas using randomly placed sample units and line intercept method as described in Elzinga et al. (1998) or other statistically appropriate method.			
<b>C-5B.</b> In Year 5, at least 3 native woody species will provide at least 5% aerial cover each within the Wetland Tree/Shrub planting areas.				
<b>C-5C.</b> In Year 5, native woody vegetation within the Upland planting areas will provide at least 30% aerial cover.				
<b>C-5D.</b> In Year 5, at least 3 native woody species will provide at least 3% aerial cover each within the Upland planting areas.				
<b>C-6A.</b> In Year 7, native woody vegetation within the Wetland Tree/Shrub planting areas will provide at least 60% aerial cover.				
<b>C-6B.</b> In Year 7, the Wetland Enhancement Type I areas will have at least 75 conifers per acre.	In Year 3, determine density of living conifers per acre using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000) or other statistically appropriate method.			
<b>C-7A.</b> In Year 10, native woody vegetation within the Wetland Tree/Shrub planting areas will provide at least 75% aerial cover.	In Year 10, determine woody cover by species in the Wetland Tree/Shrub and Upland planting areas using randomly placed sample units and line intercept method as described in Elzinga et al. (1998) or other statistically appropriate method.			
<b>C-7B.</b> In Year 10, at least 2 native woody species will provide at least 10% aerial cover each within the Wetland Tree/Shrub planting areas.				

Unit C Performance Standards	Monitoring Tasks/Methods	Related Objectives	Functions and Values *	Function Attributes from Hruby et al. (1999) **
<b>C-7C.</b> In Year 10, native woody vegetation within the Upland planting areas will provide at least 50% aerial cover.				
<b>C-7D.</b> In Year 10, at least 2 native woody species will provide at least 7% aerial cover each in the Upland planting areas.				
<b>C-8.</b> In Years 5 and 10, Himalayan blackberry will not cover more than 20% of the Forested Wetland Enhancement, Upland planting areas, and buffers at the site, and not more than 10% in the Wetland Re-Establishment Area. <b>In Years 1 through 10, remove all Japanese knotweed, English ivy, and purple loosestrife identified within Unit C.</b>				
<b>Woody Habitat Structures</b>				
<b>C-9.</b> In Year 1, at least 50 woody habitat structures (vertical snags, brush piles, and/or LWD) will be present within Unit C.	Woody habitat structures will be counted and documented in monitoring reports.	4	Habitat	LWD. Snags.

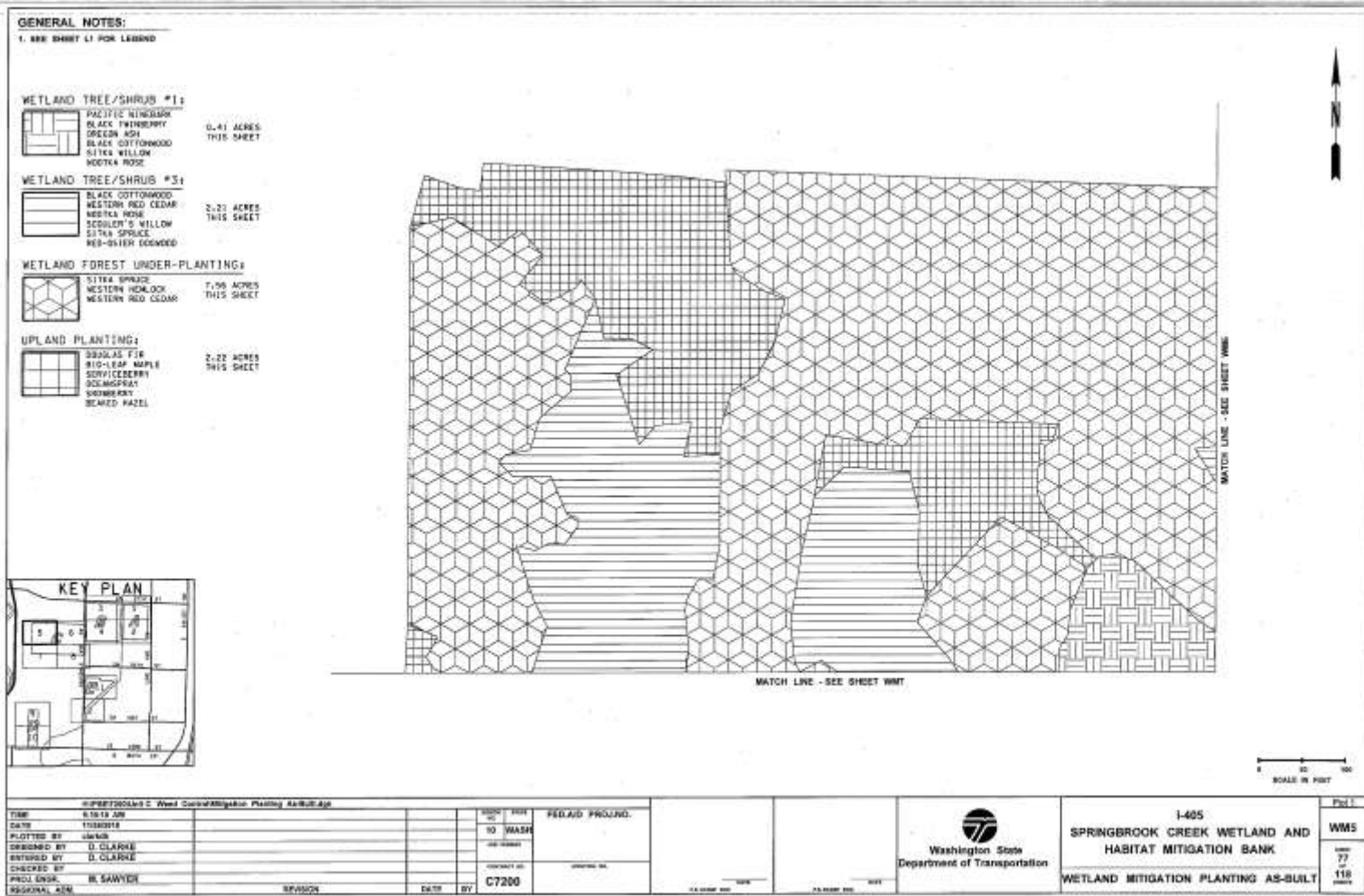
## PERMIT REQUIREMENT

The following excerpt is from the United States Army Corps of Engineers Permit 200600100.

f. The permittees shall implement and abide by the mitigation plan "*Springbrook Creek Wetland and Habitat Mitigation Bank Instrument*", dated August 2006 and the final "*Memorandum of Agreement for Springbrook Mitigation Bank*" dated August 2006. Mitigation bank monitoring shall be performed quarterly for years 1 through 5 and annually for years 6 through 10. Mitigation bank monitoring reports summarizing all monitoring results will be due in years 1, 3, 5, 7, and 10 by March 31<sup>st</sup> of each year. All reports must be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch and must prominently display the reference number 200600100 and name "*WSDOT and City of Renton Springbrook Mitigation Bank*".

# Appendix 2 – As-Built Drawings

(from WSDOT 2010)

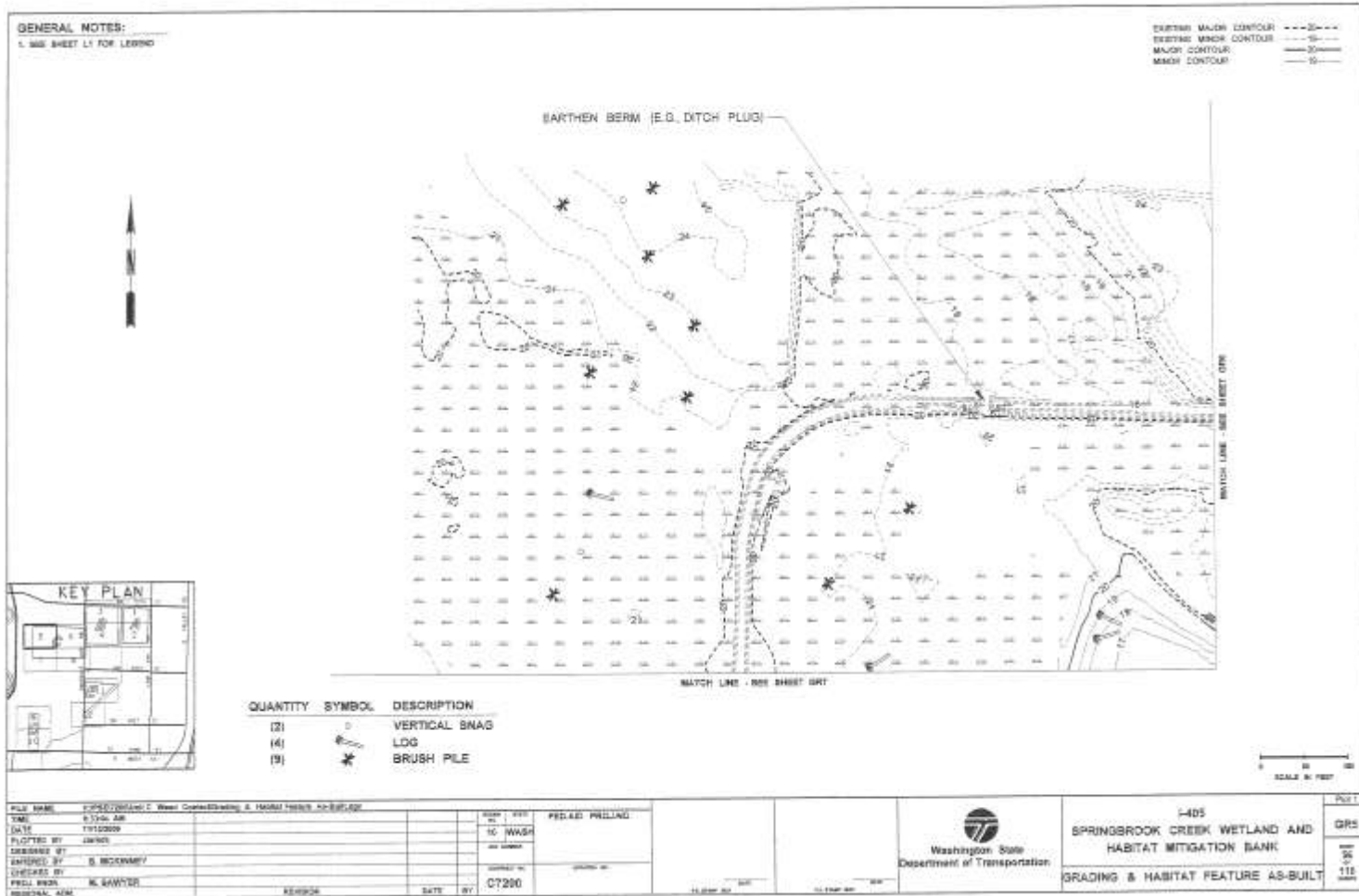


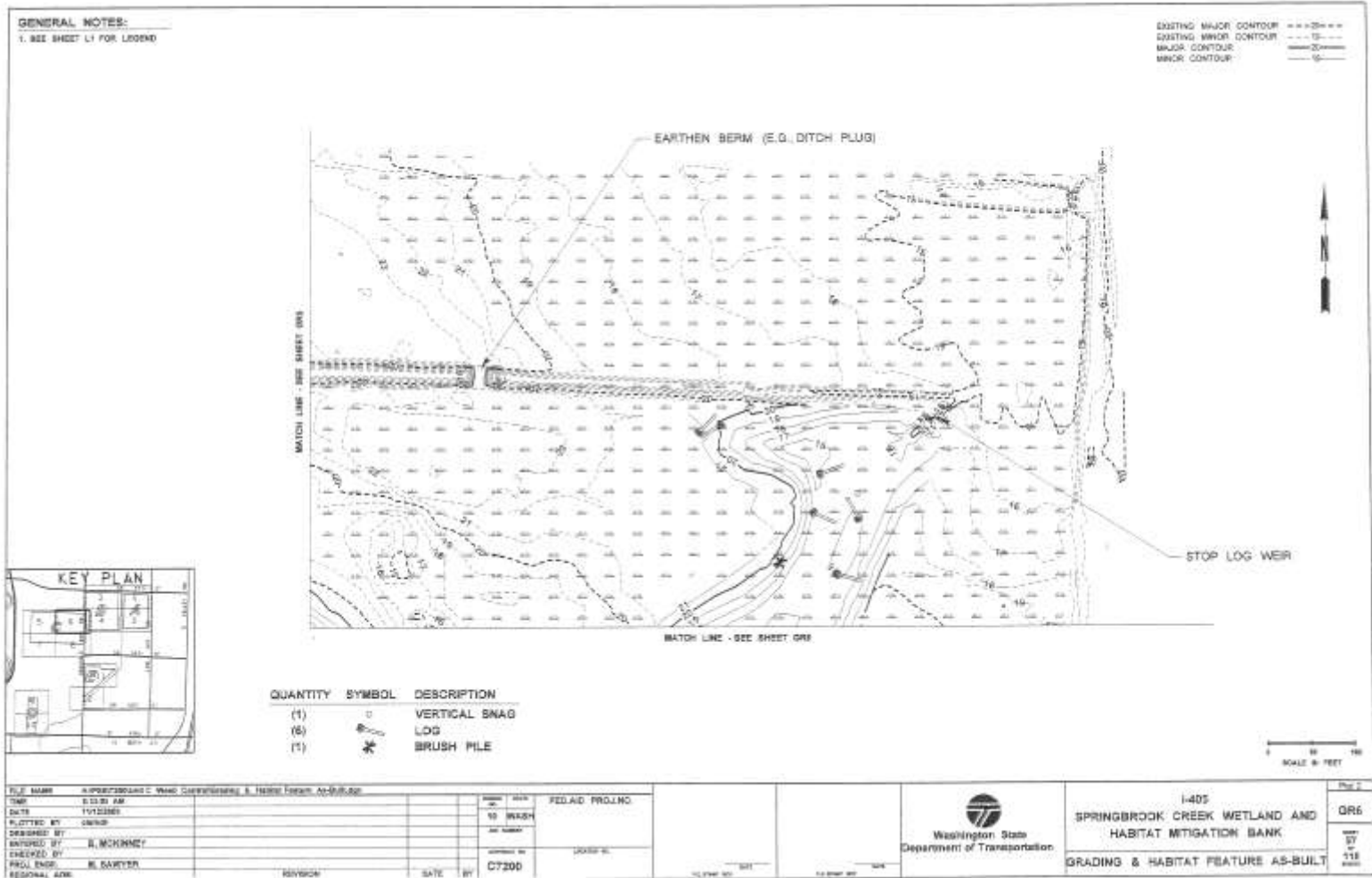


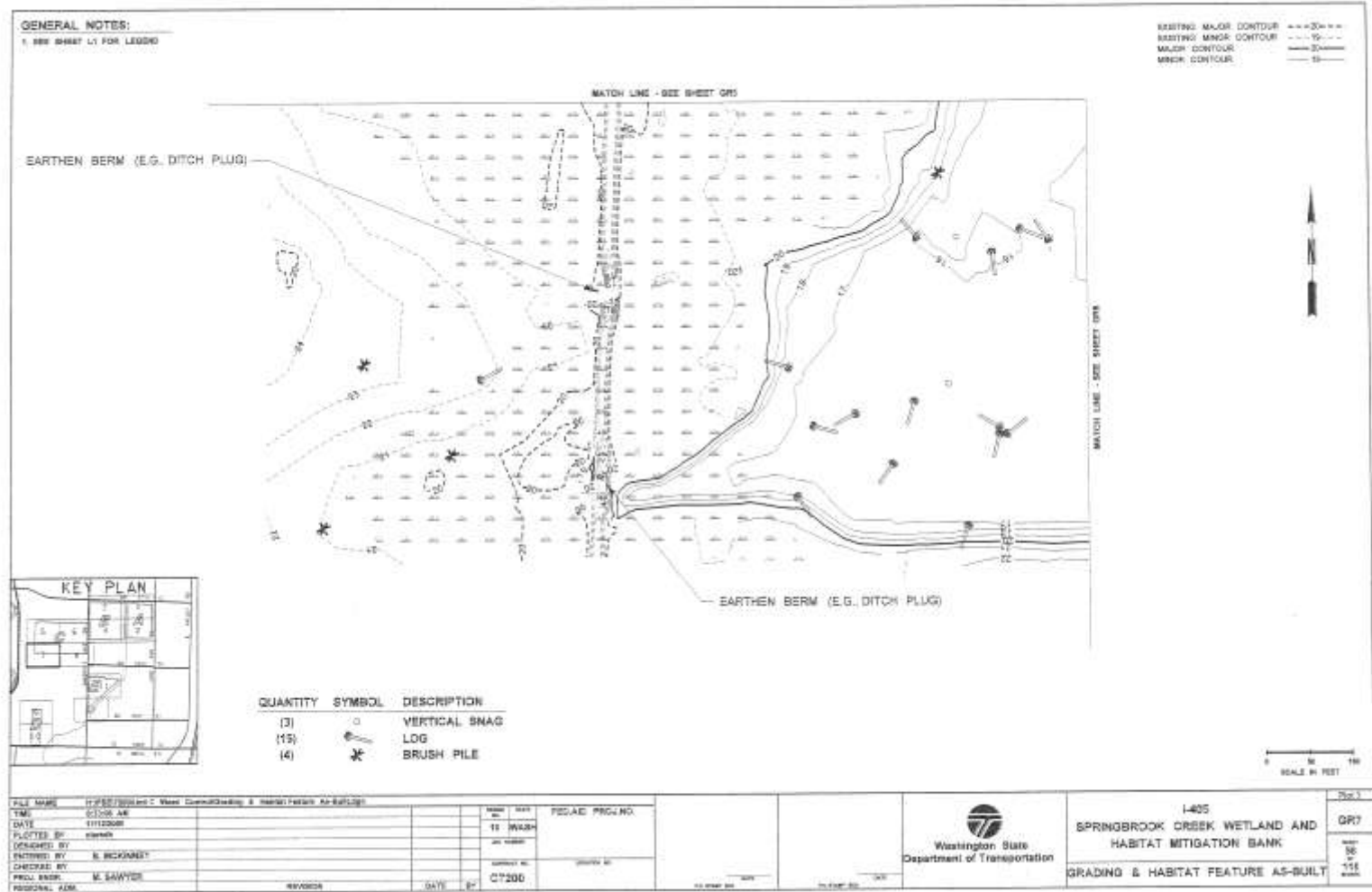


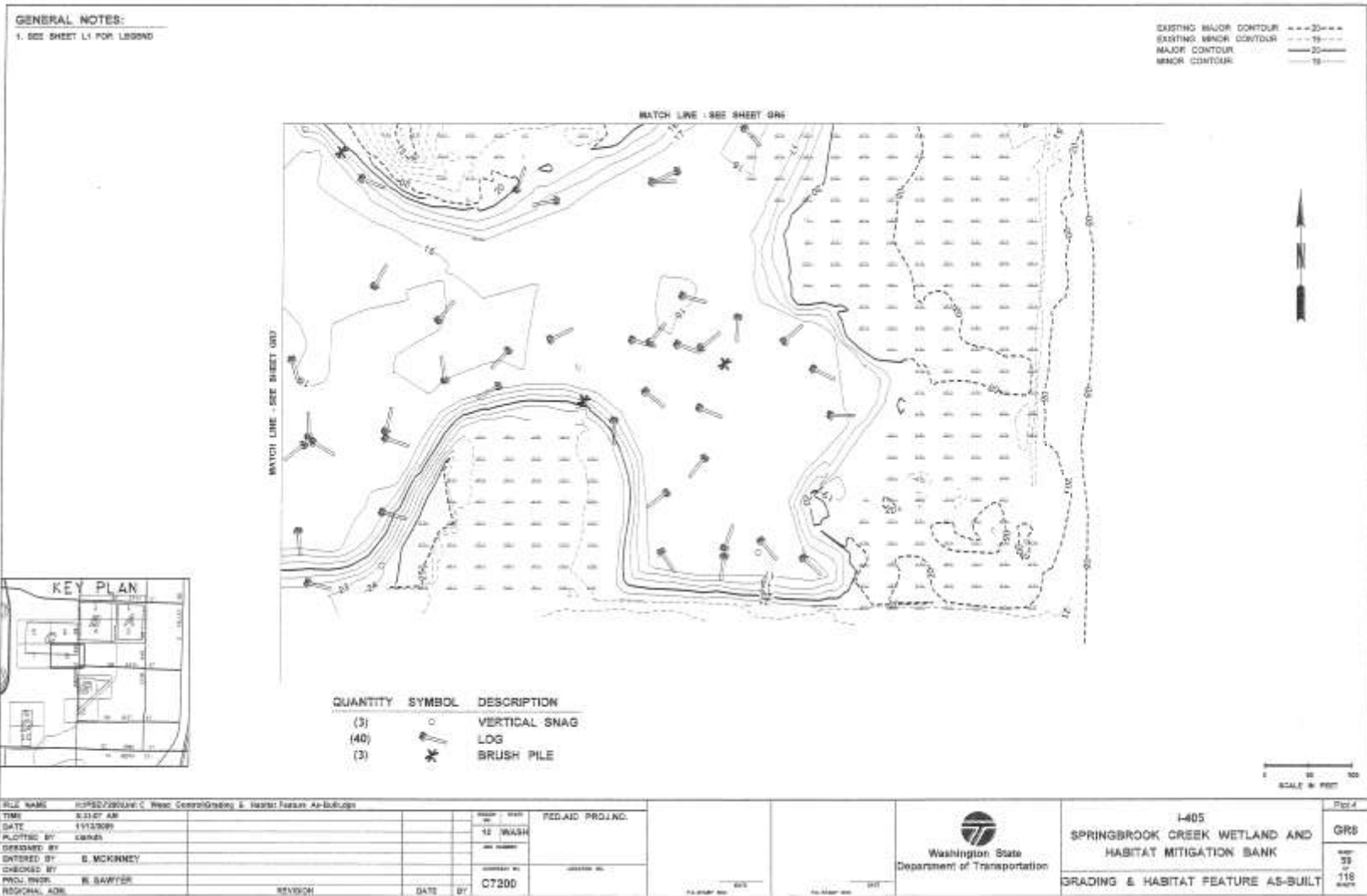


# Appendix 3 – Large Woody Debris Map









## Appendix 4 – Photo Points

The photographs below were taken from permanent photo-points on August 9<sup>th</sup>, 2010 and document current site development.



**Photo Point 1a**



**Photo Point 1b**



**Photo Point 1c**



**Photo Point 1d**



**Photo Point 2a**



**Photo Point 2b**



**Photo Point 2c**



**Photo Point 3a**



**Photo Point 3b**

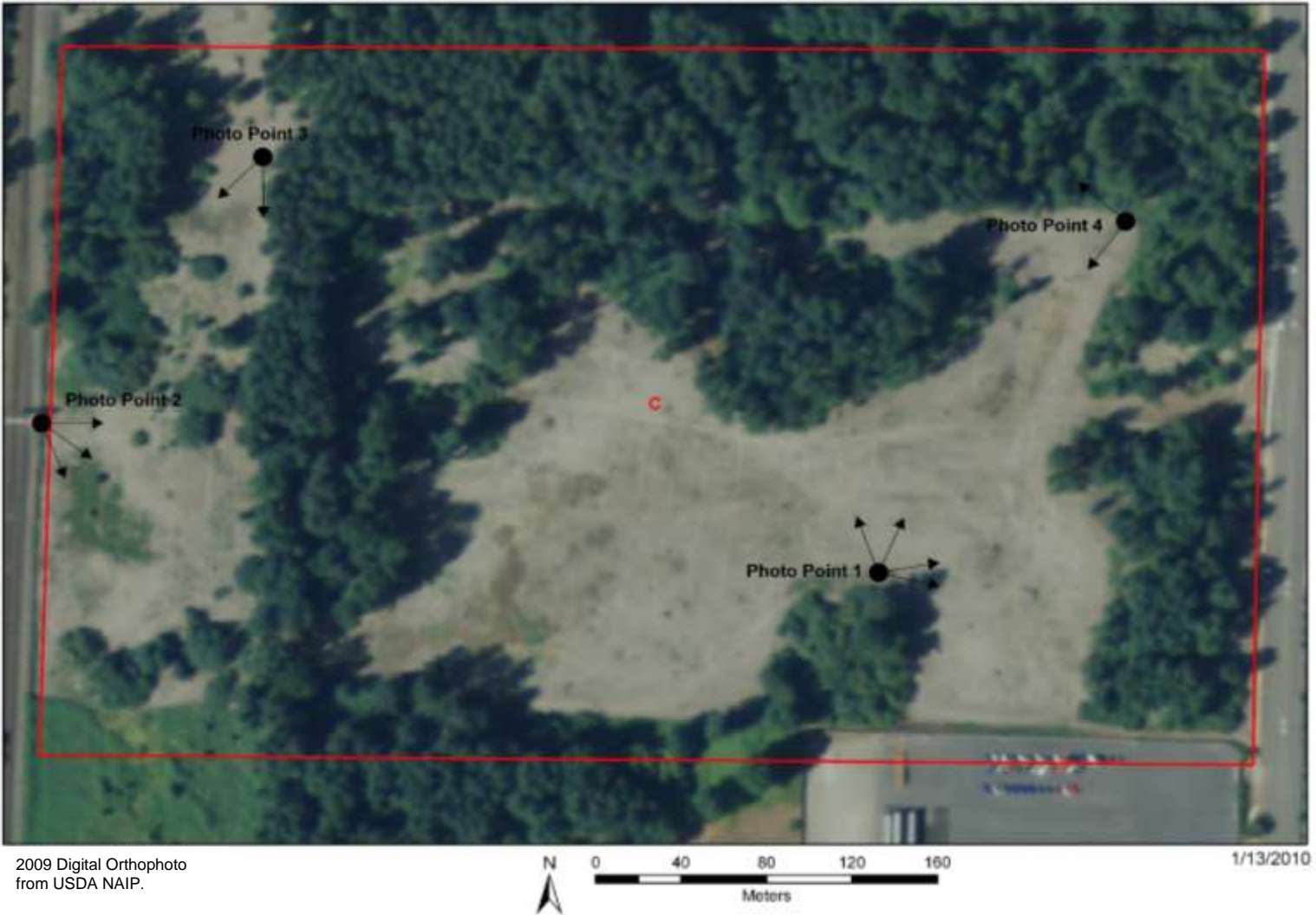


**Photo Point 4a**



**Photo Point 4b**

## Photo Points - Springbrook Unit C



## Appendix 5 – Accounting Ledger

See the *Springbrook Creek Wetland and Habitat Mitigation Bank 2010 Status Report* for the current Accounting Ledger dated 9/2/2010.

## Literature Cited

1. Washington State Department of Transportation (WSDOT). 2006. Springbrook Creek Wetland and Habitat Mitigation Bank Instrument. I-405 Corridor Program.
2. Washington State Department of Transportation (WSDOT). 2010. Springbrook Creek Wetland and Habitat Mitigation Bank 2010 Status Report.
3. Washington State Department of Transportation (WSDOT). 2009. I-405 Springbrook Creek Wetland and Habitat Mitigation Bank Units C As-Built Report.
4. Washington State Department of Transportation (WSDOT). 2010. Revised: I-405 Springbrook Creek Wetland and Habitat Mitigation Bank Units C As-Built Report.
5. United States Army Corps of Engineers. 2006. Department of the Army Permit Number 200600100.
6. Washington State Department of Transportation (WSDOT) WSDOT Wetland Mitigation Site Monitoring Methods (12 June 2008). <http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf>